

CLAIMS

What is claimed is:

- 1     1.   An auxiliary valve positioned in an intake passageway of a four-cycle internal  
2        combustion engine for controlling the flow of air/fuel mixture into a combustion  
3        chamber, comprising:  
4            a through passage, said through passage defined by a top wall, a bottom wall,  
5        and opposing side walls;  
6            a swingable door openable and closable in relation to said through passage; and  
7            a spring loaded assembly biasing said swingable door closed.
- 1     2.   An auxiliary valve according to claim 1, further comprising an attachment bracket  
2        secured to said top wall, said attachment bracket serving to secure the auxiliary valve  
3        inside the intake passageway.
- 1     3.   An auxiliary valve according to claim 1, further comprising a bracket secured to said  
2        bottom wall, said bracket having a lip configured to catch said swingable door in the  
3        closed position, and retard the opening of said swingable door.
- 1     4.   An auxiliary valve according to claim 3, wherein said lip is curved to guide said  
2        swingable door into the closed position.
- 1     5.   An auxiliary valve according to claim 1, wherein said spring loaded assembly  
2        includes a boss and a latching member partially disposed within said boss, said  
3        latching member capable of movement in association with the opening and closing  
4        of said swingable door.
- 1     6.   An auxiliary valve according to claim 5, wherein said latching member extends  
2        through a door aperture in said swingable door, and interaction between said latching  
3        member and said door aperture allows said swingable door to open and close.
- 1     7.   An auxiliary valve according to claim 6, further comprising a plug attached to said  
2        latching member, wherein said plug is slidably supported by said boss, and said plug  
3        and said latching member are biased to close said swingable door.

- 1     8.    An auxiliary valve according to claim 7, wherein said boss is located inside said  
2           through passage on said top wall, and includes a first aperture, a second aperture, a  
3           divider positioned between said first aperture and said second aperture, and a  
4           bushing-like hole in said divider, said latching member moving within said first  
5           aperture, said second aperture, and said bushing-like hole.
- 1     9.    An auxiliary valve according to claim 8, further comprising a spring positioned  
2           around said latching member, and extending from said divider to interface with said  
3           plug, said spring biasing said plug away from said divider.
- 1     10.   An auxiliary valve according to claim 9, wherein said swingable door has a rounded  
2           upper edge surface allowing said swingable door to pivot.
- 1     11.   An auxiliary valve according to claim 10, wherein said latching member is hook  
2           shaped, and includes a horizontal portion, a vertical portion, and a curved portion  
3           extending between said horizontal portion and said vertical portion, said curved  
4           portion interacting with said door aperture according to the bias of said spring and  
5           the cycles of operation of said four-cycle internal combustion engine.
- 1     12.   An auxiliary valve according to claim 11, wherein, when said four-cycle internal  
2           combustion engine is operating at low speeds, the bias of said spring is overcome  
3           and said swingable door opens after the intake stroke begins.
- 1     13.   An auxiliary valve according to claim 11, wherein, when said four-cycle internal  
2           combustion engine is operating at low speeds, the bias of said spring closes said  
3           swingable door after the intake stroke ends.